Abstract

Robust controllers designed via \( H^\infty \) Loop Shaping are complicated and are of order higher than that of the plant. It is very difficult to implement these controllers in practical engineering applications. To overcome this problem, Genetic Algorithm is used to approximate a robust PID controller from \( H^\infty \) Loop Shaping controller so that the difficulties in implementation of higher order controller can be avoided.

References

- Somyot Kaitwanidvilai, 2008, "Design of Structured Controller Satisfying \( H^\infty \) Loop Shaping using Evolutionary Optimization: Application to a Pneumatic Robot Arm" Engineering Letters, 16:2, EL_16_2_03.
- Somyot Kaitwanidvilai, and Manukid Parnichkun, 2004 "Genetic-Algorithm-Based Fixed-Structure Robust \( H^\infty \) Loop-Shaping Control of a Pneumatic Servo-system" Journal of Robotics and Mechatronics Vol. 16 No. 4.
- Wen Tan, Horacio J. Marquez, and Tongwen Chen 2002 "Multivariable Robust Controller Design for a Boiler System" IEEE Transactions on Control Systems
Application of Genetic Algorithm for Tuning of Reduced Ordered Robust PID Controller


Index Terms

Computer Science  Control Systems

Keywords

Robust Controller H? Loop Shaping Weight Selection Genetic Algorithm PID Controller And Missile Control System
Application of Genetic Algorithm for Tuning of Reduced Ordered Robust PID Controller